

REMARKS

By the foregoing amendment, the non-elected claims have been cancelled without prejudice, and the title has been amended as suggested by the Examiner. Also, enclosed herewith is a replacement drawing sheet containing Figure 10, making the corrections noted by the Examiner. Favorable consideration of these amendments and approval of the new drawing sheet are respectfully requested.

Claims 1-15 have been amended as indicated. In particular, claim 1 has been amended to include the recitations formerly in claims 4 and 11, which claims have now been cancelled. Claim 1 has also been amended to specifically claim any equivalent steps. The applicant respectfully requests that amended claim 1 be construed, when examined, to have the same scope as if it were an original claim, i.e., to encompass equivalent steps, insofar as the applicant does not intend to disclaim any coverage as to equivalents.

Claim 3 has been amended to clarify its meaning, insofar as the Examiner appeared to have construed the limitation that the tubes in the handle portion are "kept separated" to encompass a finished frame in which the tubes in the handle portion not separated from one another, a meaning that was not intended. Thus, the amendment to claim 3 is not narrowing.

Claim 12, which was objected to under Section 112, has also been cancelled. New claims 37-42 have been added.

Claims 5, 8, and 15 have been amended to conform to language changes and limitations introduced into amended claim 1. The revisions to claims 5, 8, and 15 are not themselves narrowing, however.

Amended Claim 1

Claim 1 now recites a method for making a composite sports racquet frame by inflation molding of a pair of tubes of material such as prepreg. A plurality of pins are inserted between the tubes when the tubes are placed in the mold, in what will become the head portion of the racquet, so as to form string holes when the frame is molded. The pins are provided on a plurality of pin plates, each having a body portion. The pins on each pin plate extend in the same direction, parallel to one another, e.g., as shown in Figures 4 through 10. According to the claimed method, the pin plates are secured to one of the mold plates so that the pins of each mold plate extend at an angle different from the pins of the adjacent pin plates. This is shown, e.g., in Figures 3. Thus, for example, the pins of the mold plate 78 at the tip of the racquet frame extend parallel to the racquet axis. The pins of the adjacent pin plates 76a and 76b, which are located in the upper corners of the racquet head, extend at angles relative to the racquet axis. The pins in the pin plates 74a, 74b, which are along the sides of the racquet frame, extend perpendicular to the racquet axis.

In the last Office Action, claim 11 (which was dependent on claim 4 and added the additional recitation that the pins on each pin plate extended parallel to one another) was rejected as being anticipated by Mott U.S. patent No. 4,842,798 and

obvious over Kicherer U.S. patent No. 3,930,920 in view of Hong U.S. patent No. 5,234,657. The applicant respectfully submits that amended claim 1 is neither anticipated by nor obvious over such references.

Mott discloses sandwiching a curved, ladder-like structure between an upper and lower tube forming a racquet head. The plastic ladder structure includes a pair of rails 28, 30 separated by rungs 32 which form string holes during molding. Mott does not anticipate amended claim 1 for at least three reasons. First, assuming for the moment that the ladder-shaped member is considered to be a pin plate, Mott does not disclose using a plurality of such members as claimed. Rather, "[a]dvantageously, a single ladder-shaped member, shaped to conform to the whole of the region of the frame containing string holes, is used." Col. 1, ll. 45-47.

Second, as shown in Figure 2, the rungs 32 are not parallel to one another, i.e., do not all extend in the same direction as claimed. Instead, each pin is perpendicular to the tangent of the side pieces or rails 28, 30. Because the rails 28, 30 curve to match the curvature of the head, it is impossible for the rungs 32 to extend in the same direction. Rather, they extend along radii which converge towards the middle of the head portion.

And, third, because two rails 28, 30 are used, in order to remove the pins after molding, the pins must be separable from one another, e.g., as shown in Mott Figure 4. In contrast, in the method of claim 1, the pins are secured at one end in the body portion of the pin plate, and the distal ends of the pins are received in

grooves in the mold plate (or, optionally, both mold plates). Thus, the method of claim 1 does not require the use of two-piece pins, i.e., each pin can, if desired, be a single piece.

For such reasons, favorable consideration of amended claim 1 over Mott is respectfully requested.

With respect to Kicherer, in rejecting former claim 11, the Examiner acknowledged that Kicherer "does not teach that said pins are parallel and secured to a plurality of pin plates." However, the Examiner contended that it would be obvious to use the pin plates disclosed in Hong in Kicherer. Office Action page 7.

However, former claim 11, as well as amended claim 1, require more than just the use of pin plates with pins - they require that the pins of each pin plate extend parallel to one another, i.e., in the same direction. Amended claim 1 further requires that pins of each plate extend in a direction different from the pins of adjacent pin plates. The applicants respectfully contend that the proposed combination of Kicherer and Hong would not render claim 1 obvious for two reasons.

First, the applicant respectfully disagrees that it would have been obvious, except in hindsight, to use the pin plates disclosed in Hong in Kicherer. The Hong pin plates are used as an upper and lower pair (see Figures 5-7) to form a frame in which the string holes are offset alternatively above and below the central string bed plane. See. Figures 8 and 10. Kicherer, on the other hand, is seeking to form a racquet in which string holes all lie in the same plane. Thus, a person skilled

in the art would not look to Hong, except in hindsight, as an alternative way to make the racquet disclosed in Kicherer. Moreover, while the Examiner notes that Hong discloses "that such pin plates provide for an improved molded product," Office Action at p. 7, that is because in Hong, contrary to the prior art (see Figs. 11-13 of Hong), the string holes do not go through the tubular frame. However, such would not provide an additional benefit in Kicherer, because the string holes already do not go through the frame.

Second, even if it were obvious to use the pin plates of Hong in Kicherer, the proposed combination would not produce the invention of claim 1, because Hong does not disclose pin plates in which all the pins are parallel to one another, and in which the pins of one pin plate extend at an angle, relative to the racquet axis, which is different from the adjoining pin plates. As shown in Figure 1, the pins 131 on the pin plates 13 appear to be perpendicular to the tangent of the frame. Thus, the pins on each plate are angled slightly towards one another, i.e., toward a center point within the string bed. And, as Figure 1 shows, adjoining pins on adjoining pin plates may be substantially parallel to one another. Thus, the use of the pin plates disclosed in Hong in Kicherer would not produce the claimed invention.

The applicants have found that providing a plurality of pin plates, where the pins on each plate are parallel to one another, provides a desirable method of making good quality sports racquets. Because such a method is not disclosed in or

obvious over the cited references, favorable consideration and allowance of claim 1 are respectfully requested.

The applicant respectfully requests an allowance of dependent claims 2-3, 5-10, and 13-15, for the reasons recited in connection with amended claim 1, as well as the additional novel features recited therein.

New Claims 37-42

Claim 37 is dependent on claim 2, and further recites a specific configuration of pin plates: a single pin plate each to form the string holes in the tip, throat bridge, each side, and each upper corner; and at least one pin plate to form the string holes in the lower corners. Even if it were obvious to combine Hong with Kicherer, and even if Hong disclosed the use of pin plates where the pins are all parallel to one another, Hong does not disclose or suggest the above plate configuration. For example, rather than use a single pin plate for the tip, the tip region in Hong has two pin plates. Moreover, each half of the racquet has a pin plate that is used to form string holes not only in the tip but in an upper corner of the racquet. For such additional reason, allowance of new claim 37 is respectfully requested.

As noted above, claim 37 requires that a single pin plate be used to form the string holes in the throat bridge. It is unclear how string holes are formed in the throat region of Kircherer, but it is clear that a single pin plate, with pins parallel to one another, could not be used.

Similarly, it is unclear how string holes are formed in the throat bridge of Mott. If the ladder-like structure were to extend completely around the head, i.e., including across the throat bridge, when the racquet is molded the rails 28, 30 would be completely embedded where the throat bridge meets the sides of the frame and could not be removed. As noted above, Mott discloses using a single ladder-like structure. There is no suggestion in Mott of using a second ladder-like structure for the throat bridge, nor any disclosure of how, if that approach were to be used, string holes could be formed in the regions where the ends throat bridge join the main tubular frame. For such reasons, Mott neither discloses nor suggests the method of claim 37.

Claims 38 recites that two pairs of pin plates are used to form the lower corners. Hong discloses using a pair of pin plates for each lower corner. However, the pins of each pin plate lie in different planes. Claim 38, because of its dependency on claim 1, requires that the pins lie in substantially a single plane. Hong does not disclose or suggest using a pair of pin plates in each lower corner with pins in a common plane. For such additional reason, allowance of claim 38 is respectfully requested.

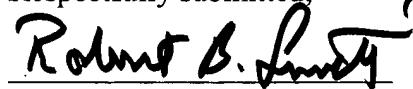
Claims 39-42 recite that the pins in the side pin plates extend perpendicular to the racquet axis, and that the pins in the tip and throat bridge plates extend parallel to the racquet axis. Such feature is not disclosed or suggested in Hong. For

such additional reason, favorable consideration and allowance of claims 39-42 are respectfully requested.

Summary

In light of the amendments and arguments set forth above, the applicant respectfully requests favorable consideration and allowance of the application.

Respectfully submitted,



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